REMARKS:

In the outstanding Office Action, claims 1-3, 7, 10 and 13 were rejected, and claims 4-6, 8, 9, 11, 12, 14 and 15 are objected to. Claim 16 has been added, and claims 1, 10 and 13 have been amended for clarification. Thus, claims 1-16 are pending and under consideration. No new matter has been added. The rejections are traversed below.

REJECTION OF THE SPECIFICATION:

At page 2 of the Office Action the Examiner objects to the specification because the arrangement of the section headings in the present application do not conform with 37 CFR §1.77(b). The section headings are herein amended to comply with the same. Specifically, the section headings are amended to have no underlining. Please note that the replacement section headings are only shown underlined to denote added text.

Thus, it is respectfully requested that the Examiner withdraw the outstanding rejection to the specification.

ALLOWABLE SUBJECT MATTER:

At page 10 of the outstanding Office Action, the Examiner stated that claims 4-6, 8, 9, 11, 12, 14 and 15 recite allowable subject matter.

REJECTION UNDER 35 U.S.C. §102(b):

At item 4 of the outstanding Office Action, claims 1-2, 10 and 13 were rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,027,404 ('404).

'404 discusses a pattern matching vocoder for matching input speech signal with previously processed reference pattern signal.

The present invention discloses a method and apparatus for information use frequency prediction of future use frequencies based on use frequency of time series information.

The Examiner compares the '404 pattern matching vocorder with information use frequency prediction method and apparatus of the present invention. In '404, an input speech signal is supplied to a line spectrum pairs (LSP) analyzer where unnecessary high-frequency

components in the input speech signal are eliminated (see, column 4, lines 36-43 of '404). The input speech signal is multiplied with a window function at predetermined intervals for extracting analysis frames for every predetermined interval (see, column 4, lines 43-48 of '404). The LSP analyzer receives voiced/unvoiced/silent data concerning the input speech signal and performs approximation processing for each section consisting of a predetermined number of analysis frames for supplying the same to a pattern matching processor (see, column 4, line 62 through column 5, line 8 of '404). Then, the pattern matching processor performs matching between the input data and reference pattern vectors stored in reference pattern memories that are prepared using preprocessing, such as elimination of voiced intervals, removal of unnecessary adjacent frames, and classification based on the voiced/unvoiced/silent pattern (see, column 5, lines 9-21 and lines 31-37 of '404), and makes a linear prediction of the input speech (see, column 23, lines 30-41 of '404). This means that the '404 pattern matching vocorder is directed to processing an input speech based on advance processed reference patterns of speech signal by comparing captured characteristic elements of the input speech signal and the processed reference pattern speech signal.

The present invention provides an information use frequency prediction method and apparatus based on "use frequency". As recited in amended independent claims 1, 10 and 13, the present invention includes sequentially performing temporal operation in a unit of predetermined time "with respect to a relative relation between a first pattern of a first data including use frequency based on first time series information that represents a temporal change of the use frequency of the first time series information of the first data, and a second pattern of a second data including use frequency of second time series information that represents a temporal change of the use frequency of the second time series information based on the second data". Further, a prediction unit "predicts additional data of the use frequency of the first time series information constituting the pair, based on the second pattern corresponding to the pair" where "a time corresponding to each data contained in the first data is different from a time corresponding to the additional data". This means that the present invention predicts future use frequency based on the use frequency of the time series information to enable accurate prediction of use frequency. The '404 pattern matching vocoder does not teach or suggest a prediction based on "use frequency" that is based on "time series information".

It is submitted that the independent claims are patentable over '404.

For at least the above-mentioned reasons, dependent claim 2, depending from independent claim 1 is patentably distinguishable over '404. The dependent claims are also

independently patentable. As recited in claim 2, the temporal operation includes "… temporal operation, with regard to all combinations of a plurality of first time series information belonging to a first group, and a plurality of second time series information belonging to a second group". The '404 pattern matching vocoder does not teach or suggest a temporal operation with respect to a first pattern including first data of a use frequency of first time series information and data of a use frequency of second time series information, including "all combinations of a plurality of first time series information belonging to a first group, and a plurality of second time series information belonging to a second group".

Therefore, withdrawal of the rejection is respectfully requested.

REJECTION UNDER 35 U.S.C. §103(a):

At item 6 of the outstanding Office Action, claims 3 and 7 were rejected under 35 U.S.C. §103(a) as being unpatentable over '404, in view of U.S. Patent No. 6,463,428 ('428).

'428 discusses a user interface for providing automatic generation and ergonomic presentation of keyword search criteria by selecting search results based on frequency of appearance of returned records and frequency with which the results are approved.

The Examiner acknowledges that all the features recited in claims 3 and 7 are not discussed in '404, thus relies on '428 as discussing the same. When database searches are performed according to '428, records of the search results are constructed and some or all words from titles, descriptions, contents of the records is culled from the search results (see, column 14, lines 15-25 of '428). The most common words in records of the search results are identified and ranked based on frequency of occurrence and significance (see, column 14, lines 29-33 and FIG. 18 of '428). Then, when other database searches are conducted, a user can select from the records for searching where the user is enabled to edit the record to conform to the user's needs (see, column 14, lines 54-67 of '404). This means that the '428 user interface is directed to storing records of search results such that a user can later use the records to conduct other searched.

The combination of the '404 pattern matching vocoder and the '428 user interface results in a system for matching input speech signal with previously processed reference pattern signal, where the system allows search results stored based on frequency of appearance of words in returned search results and frequency with which the search results are approved to be selected for future searches.

11

The burden of establishing a prima facie case of obviousness based upon the prior art lies with the Examiner. In re Fritch, 23 U.S.P.Q. 2d 1780, 1783 (Fed. Cir. 1992). According to In re Fritch, the Examiner "... can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references." The combination of the '404 pattern matching vocoder and the '428 user interface does not teach or suggest information use frequency prediction program and method including storing "prediction results" of a prediction unit that predicts "at least a second datum of the user frequency of the first time series information ... based on the second pattern corresponding to the pair", where "the first time series information and the second time series information are time series information of use frequency of keywords in a keyword search engine on the Internet", as recited in claims 3 and 7.

It is submitted that the claims are patentably distinguishable over the combination of the '404 pattern matching vocoder and the '428 user interface. Thus, withdrawal of the rejection is respectfully requested.

NEW CLAIM:

New claim 16 has been added to emphasize that information use frequency prediction of the present invention includes, "storing first and second search logs resulting from first and second searches relating to first and second keywords, respectfully" and "obtaining first and second patterns from the first and second search logs, the first and second patterns each including use frequency and time information", for comparing the first and second patterns. Further, "a correlation coefficient between the first and second patterns based on the comparison" is calculated, and "a subsequent use of the first keyword based on the correlation and use of the second keyword" is predicted. This enables prediction of "a subsequent use of the first keyword based on the correlation and use of the second keyword", which is not taught or suggested by the cited references.

CONCLUSION:

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

STAAS & HALSEY LLP

Date: _Sept 8 2004_   By: _Mark J. Henry_

Mark J. Henry
Registration No. 36,162

1201 New York Avenue, NW, Suite 700
Washington, D.C. 20005
Telephone: (202) 434-1500
Facsimile: (202) 434-1501